SOIL AND VEGETATION

134 The North China Plain is covered with a layer of alluvial soil. In colors ranging from light yellow to dark brown, the soil varies from saline to calcareous. Some parts of the plain are sandy. Along the coast of Hopei Province, the soil has a distinct saline character. The extreme north-eastern and the western parts of Hopei lie under deep layers of black and dark brown soil which are calciferous in nature. Light and dark brown calciferous soil cover most of the eastern portion of Shansi Province. The upper layer of this type of soil is usually lighter in color because of the loss of its calciferous content through erosion. It has a low humus content. In western Shansi, loess, a fine silt, spreads over the land, with a depth of 150 feet at many places. Loess is yellow-brown in color and calcareous in character. In the river valleys in Shansi Province, the yellow soil is predominantly alluvial.

137 Extensive cultivation in the North China Plain
241 leaves very little land for natural vegetation. Kaoliang and wheat occupy most of the flat acreage, and orchards of pears, apples and dates which grow well in cool climate are planted on the surrounding hills. Semi-desert plants are found in northern Shansi Province. Trees of the mulberry family and hardy, slow-growing types cover central Shansi. Vegetable and fruit cultivation prevails in the river valleys.

2:Gamble S-5 (1926-1933) 1954 AF 12 North China AF 12

121 over statement and so make our figures somewhat below the actual amount but still more accurate than the official figures. It has not been possible to measure or estimate the probable error.

Our land study was made in three sections, first of the Experimental District, second of the 1st District, and third of the rest of the hsien. The first two were more detailed than the third as it was felt that they were reasonable samples and it was not necessary to repeat all the detail in the larger study.

● 134 The total amount of arable land was reported as 1,424,931 mu, approximately 371 square miles. This was 76 per cent of the total reported area. In the Experimental District and the 1st District the non-farm area was reported as 11 and 18 per cent. A general inspection of the other districts showed that they had a considerably larger proportion of waste land. The proportion of non-farm land is not particularly significant in our study as the number of persons per square mile of gross area would be almost the only figure to be radically affected by any change in the percentage. It is of interest to note, however, that in the 1st District the village heads reported only 1.2 per cent of the district occupied by graves.

361 134 The crop area controlled by the different villages ranged from 245 to 32,500 mu. The average was 3,150 mu, 525 acres. Only one village had more than 13,000 mu, five had more than 12,000 mu (2,000 acres), 10 had 10,000 mu or more. Only 47, 10.4 per cent, had as much as 6,000 mu (1,000 acres). Fifty-four per cent of the villages had less than 2,500 mu and 19 per cent had less than 1,000 mu. (See Table 58.)

As the number of families in the villages varied from six to 1,200 the average amount of crop area per family was much more significant than the total amount of land held by the village. The per family average varied from seven to 76 mu. In 11 villages the average was less than 10 mu per family. It was less than 15 mu in 75 villages. These probably were the poorer villages of the hsien, though the lack of agricultural income may have been made up by industrial or other activity. In only 15 villages, 3.3 per cent, was the average 40 or more mu per family. Table 58 gives the averages for the villages in the 1st District, the Experimental District, and the hsien.

Grouping the villages according to the largest land holding of any of their families, we find that in seven villages the largest holding was less than 50 mu. In almost half the villages, 47.3 per cent, it was less than

2: Gamble S-5 (1926-1933)1954 . AF 12 North China AF 12

150 mu, while in three-quarters of the villages it was less than 250 mu. In only 32 villages, 7.0 per cent, was the largest holding 400 or more mu. Only two villages reported their largest holding to be over 1,000 mu.

The largest amount of land owned by one family was 3,950 mu. That was a city family. The largest family holding in any village was 1,800 mu, 300 acres. Only three families owned more than 1,000 mu; only six more than 600 mu, 100 acres; only 11 more than 500 mu. There were only 132 families who owned 300 mu (50 acres) or more. They were only 0.2 per cent of the land owning families. Large land holdings were not a serious problem in Ting Hsien.

The 2.1 per cent of the families who owned 100 or more mu held 17.1 per cent of the farm land. The 9.0 per cent owning 50 or more mu owned 38.6 per cent of the crop area. At the lower end of the scale, 91 per cent of the land owning families had less than 50 mu, while 72 per cent had less than 25 mu each. The latter group owned 33.1 per cent of the crop area.

Our study did not subdivide the families with less than 25 mu, but in the study of a single village, located some miles south of Ting Hsien, 85.2 per cent of the families owned less than 50 mu, while 62.3 per cent had less than 20 mu. Fifteen per cent had less than five mu per family, 23.1 per cent had from 5.0 to 9.9 mu, and 24.2 per cent from 10.0 to 19.9 mu. The 15.0 per cent with less than five mu per family owned only 1.5 per cent of the land. Those with less than 20 mu owned some 22 per cent of the farm area. The 3.5 per cent of the families who owned 100 mu or more held 20.9 per cent of the land.[1]

Just over 10 per cent of the privately owned land was listed as worth less than $25 per mu. Just under one-quarter, 24.3 per cent, was worth from $25 to $49, while a little more than another quarter, 28.2 per cent, was valued between $50 and $74. Only 0.6 per cent was worth $150 or more per mu. (See Table 61.)

As might be expected, the distribution in the different price classifications varied considerably in the different districts. Forty-seven per cent of the land in the 3rd District was valued at under $50 per mu. In the city only 8.7 per cent was valued at less than $50 per mu and none at less than $25 per mu. At the upper end of the scale 48.5 per cent of the city land was worth $100 or more per mu. In the 2nd District the

1. Sidney D. Gamble, "Hsin Chuang", *Harvard Journal of Asiatic Studies*, vol. 8, no. 1 (1944).

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2:Gamble S-5 (1926-1933) 1954 AF12 North China AF12

312 tion throughout the growing season made irrigation necessary for the growing of good crops in ordinary years and as insurance for at least minimum crops in drought years. Ground water was available fairly near the surface and in reasonably sufficient amounts. The water table varied from two to 40 feet below the surface, averaging about 14 feet. How this was developed for irrigation and domestic use is reported in Chapter XI.

133 Ting Hsien is part of the east China alluvial coastal plain, so there are no natural hills in the area. Dykes had been built to control the rivers and a few mounds had been built up to a height of some 30 or 40 feet. Local tradition says that one of these was piled up by the army to make the enemy believe it was a supply of food. Another appeared to be a large grave mound with a long entrance tunnel. The average elevation is about 100 feet above sea level.

• 134 The soil of the area is generally deep and fine textured, calcareous and somewhat saline. Along the river beds there usually is a considerable area covered with coarse sand. Elsewhere the soil is sandy loam, loam, and some clay.

133 The area is drained by streams that rise to the west, cross Ting Hsien in an easterly direction, and later join the Hu T'o Ho in An-kuo Hsien. That stream flows north to the Pai Ho, which enters the sea near Tientsin. The chief rivers are the T'ang, which runs about three miles north of Tinghsien city, and the Sha, which runs about eight miles to the south. The Meng Liang is a smaller watercourse that runs southeast between the two and joins the Sha in An-kuo Hsien. One branch of the Meng Liang comes up to the southeast corner of the city wall, where it connects with the old, now dry, city moat, which in one of the old records was described as 100 feet wide and 20 feet deep.

The rivers are generally swollen in summer time with the heavy rains, but in winter most of the watercourses are dry. The large Black Dragon Spring in the northwest part of the hsien insures a year round flow in the T'ang. The spring supplies enough water to irrigate some 2,090 mu of rice fields before it reaches the T'ang. There also used to be a large White Dragon Spring, but it was flooded and destroyed in the flood of 1801. The hsien history says that during the reign of Hsien Feng the Black Dragon Spring failed. The dragon king was said to have moved to a village in Ch'ing-yuan Hsien, Paoting, some 35 miles north, because too many people came to the pool to get fish. Later on, the elders of one of the villages near the spring, probably Tung Nan Ts'un, sent a

2:Gamble S-5 (1926-1933) 1954 AF12 North China AF12

361 369 Each of the villages and towns included a residence area, in which all the families lived and which was regularly surrounded by some sort of protective wall, and the fields adjacent to and surrounding the residence area. Definite boundaries were fixed between the fields of the different villages. The provincial regulations of 1928 required that they be marked by boundary stones. Boundary lines were drawn because each village assessed the land it controlled to provide funds, when needed, for village expenses for schools, home guard, and crop watching.

134 361 423 The amount of arable land controlled by the villages varied from 245 to 32,500 mu. Nineteen per cent had less than 1,000 mu. Some 73 per cent had less than one square mile of farm land. Only 10 per cent had as much as 6,000 mu, 1,000 acres. The average was 3,065 mu. The total farm area of the villages and the city was 1,424,931 mu, approximately 371 square miles. This was 76 per cent of the total area of the hsien.

Although the village boundaries were set and regularly maintained, it apparently was possible for land on the periphery to be transferred to an adjoining village if it was sold to a resident of that village. It was also evident that new villages could be formed and secure control of the surrounding land. The number of villages had been growing during the previous eighty years, for the hsien history of 1849 gave the number as 423 or 30 less than at the time of our study.

We also found 19 residence areas that were not recognized as separate villages but might well be later on. They evidently had been set up because of crowding in the original residence areas, but did not control the surrounding farm lands and did not have separate governments so were still satellite villages.

103 Seventy-one, 58 per cent, of the 123 villages in the 1st and Experimental Districts (10 villages were in both districts) were given a family surname. Six were named for the Wang family. Some nine different terms were used for village, walled village, castle, residence, camp, hamlet. The most usual one, used 26 times, was ——— chia chuang, village of the house of ———. There were 13 pairs of villages, north-south, east-west, big-little. Fifteen villages were named for physical features, a neighboring river, a bridge, a dyke, a gate, low ground, specially good soil, or white earth. One group of five villages were different goat yards. There was the village of the eight brothers, four families, ten families, eight cornered man, horse's head, old crow, head light, cow village, and

2: Gamble S-5 /1926-1933,1954 AP12 North China AP12

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TABLE 115. PRECIPITATION, JUNE–SEPTEMBER, 1914–1929
(millimeters)

1914	255.0	1918	237.6	1922	287.6	1926	no data
1915	236.2[1]	1919	319.1	1923	332.1	1927	282.4
1916	326.0	1920	64.0	1924	828.1	1928	549.5
1917	755.4	1921	24.6	1925	no data	1929	389.0

[1] September missing.

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TABLE 116. CULTIVATED LAND PER VILLAGE

Mu	*Villages*	*Per Cent*	*Mu*	*Villages*	*Per Cent*
Under 500	20	4.4	4,000–4,999	42	9.3
500–999	66	14.6	5,000–5,999	25	5.5
1,000–1,499	62	13.7	6,000–6,999	26	5.7
1,500–1,999	41	9.1	7,000–9,999	11	2.4
2,000–2,499	58	12.8	10,000 and over	10	2.2
2,500–2,999	36	8.0	Total	453	100.0
3,000–3,999	56	12.3			
Minimum 245		Maximum 32,500			

6:Young et. al. E-5 (1928-1929) 1930 AF12 North China AF12

river flows northeast to Ching Ho town and then joins the *Sha Ho* (沙河) a few miles east. In olden times this small river was partly utilised for transportation purposes, but owing to the accumulation of sand in the river bed it is no longer navigable. 133

The soil is primarily a light sandy loam, typical of the district. The water table is at a moderate level except in the case of the hilliest parts which have rather a poor water supply. Soil fertility is normal although little artificial fertilizer has been applied to the land. The land is suitable for the cultivation of the ordinary northern crops, such as corn, sorgham (Kaoliang), wheat, beans, etc. Because of the amout of water obtainable from artesian wells it would be possible to introduce the cultivation of rice into this district as has been done around the Jade Spring Mountain. 134

After leaving Peping Ching Ho is the first halting place on the road to the northwest of China by the old government eighteen foot-wide highway which passes through the centre of the town on its way to Kalgan and Mongolia. In the old days it was kept in good repair, and served as a means of communication both for heavy transport and swift messages, but since the building of the Peking-Suiyuan Railway little attention has been paid to the old highway. Gradually the fields are encroaching on its great width, and the surface is becoming rough, making it very inconvenient to travel. It was thought that the building of the Peking-Suiyuan Railway with a station at Ching Ho would be a valuable asset to the town. Unfortunately the station was built a mile away from the town and 489